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Long-term prognosis of ventricular tachycardia without apparent heart disease

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Cardiac MRI can now identify heart diseases which were not apparent with conventional techniques. The prognosis of a ventricular tachycardia (VT) depends on the presence or not of heart disease. Only VT in patients (pts) without heart disease (HD) seems benign. The purpose of the study was to evaluate the long-term prognosis of pts with spontaneous VT and without apparent HD at conventional methods.

Population: During the last 30 years, 820 pts were admitted for a sustained VT.

Methods: ECG, signal averaged ECG, Holter monitoring, exercise testing, echocardiography, right angiography in VT with left bundle branch block (LBBB) pattern, coronary angiography after 40 years and electrophysiological study were indicated.

Results: 81 pts (10 %), aged from 11 to 75 years (46±18), 46 men, 35 women had normal echocardiogram and hemodynamic study. VT had a LBBB pattern (51), right bundle branch block (RBBB) pattern (26) or both patterns (4). VT developed at exercise testing in 15 pts and was inducible or occurred with isoproterenol in 61 pts (75 %). Pts were followed from 1 to 20 years (mean 8±6); 3 were lost of view. Beta blockers and/or antiarrhythmic drugs were initially prescribed. Defibrillator was implanted in 4 pts, 2 of them for arrhythmogenic right ventricular dysplasia (ARVD) diagnosed at least 4 years later. VT catheter ablation was performed in 5 pts, only for a job in 1 pt. Three pts aged more 75 years died from non arrhythmic cause; one of them had a defibrillator. Other pts are alive without VT and without drugs in half of them. One pt developed dilated cardiomyopathy; 3 pts with initially LBBB pattern and left axis VT have signs of ARVD at MRI; 2 pts had permanent atrial fibrillation. All events occurred after 70 years or in pts with LBBB pattern and left axis VT.

Conclusions: Secondary diagnosis of ARVD in pts with VT and apparent normal heart was not associated with a higher risk of events. The prognosis was only dependent on the age and the pattern of ECG in VT. It was favourable in pts younger than 70 years and those with typical ECG in VT, LBBB and inferior axis, RBBB and inferior or superior axis. A non medical treatment was rarely required.

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New insights in typical atrial flutter ablation: extra-isthmus activation time on the flutter wave is predictive of extra-isthmus conduction time after isthmus block

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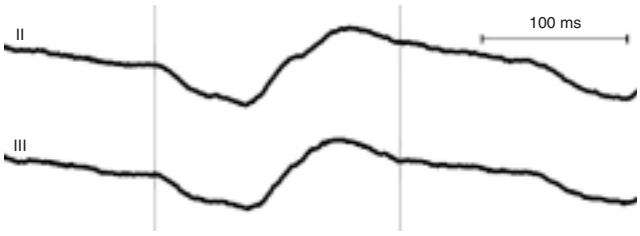
Purpose: Endpoint of radiofrequency (RF) ablation of typical atrial flutter (AFl) is bidirectionnal isthmus block (BIB). The latter is diagnosed if double electrograms representing activation on both side of the ablation line are widely separated. Nevertheless, a small interval may also be compatible with complete BIB. Predicting such a situation may avoid useless additionnal RF applications. We postulated that measuring the extra-isthmus activation time (EIAT) on the counterclockwise (CCW) ECG flutter (F) wave is correlated with the extra-isthmus conduction time after proven BIB.

Methods: Files of 76 consecutive patients (pts; 71±12 y) ablated for CCW AFl were reviewed. Ten had 2/1 conduction prohibiting measurement. Three pts had proven crista terminalis shunt and were excluded. In the remaining 63 pts (82%) EIAT was measured before the first RF pulse in lead III from the beginning of the negative deflection of the F wave to the end of the positive deflection or the beginning of the plateau (figure). After successful ablation (completion of BIB), right atrial (RA) CCW (during low septal pacing), and clockwise (CW; during low lateral pacing) activation times were measured.



Extra-isthmus activation time on the flutter wave

Results: Mean AFl cycle length (CL) was 247±34 ms and mean EIAT was 142±25 ms. BIB was obtained in all pts after 623±546 s of RF. At a pacing CL of 681±71 ms RA CCW and CW activation times were 147±23 ms and 139±26 ms, respectively. There was a good correlation between EIAT on the F wave and RA CCW (r=0.75, p<0.0001) and CW (r=0.69, p=0.0002) activation times.

Conclusions: EIAT on the F wave is an easy and feasible measure. It is correlated with extra-isthmus RA conduction time after BIB and may be used to evaluate whether block is complete in case of moderate double electrogram separation such as in patients with small RA.

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Follow-up of patients implanted with Pacemakers in France : The ELECTRA survey 2008

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The ELECTRA survey aims to know the monitoring practices of French implanters while there exist published referentials.

Methods: A questionnaire containing 32 items including single choice answer questions on the support, the type of ECG recording, the timing of controls and the parameters measured was sent to implanting centers in 2008.

Résultats: 103 completed questionnaires (27%) were received. Operators (98% males) had an experience in pacemaker implantation for <2 years (10%), 2 to 10 years (27%) and >10 years(63%). The volume of implantation was in 2007 <50 devices (18%), 50 to 100 (37%) and >100 (45%). Implanting centers belonged to the public sector (63%) or private hospitals (37%).
1 – Follow-up (FU): 47% are performed without any support (public 22%, private 78%). 53% receive assistance (public 76%, private24%): nurse 73%, orderly 12%, 15% manufacturing engineer.
2 – Physician alone performs multitrack ECG in 61% vs 77% for assisted physicians, and EGM +/- ECG programmer in 39% vs 23%.
3 – 1st FU after implant at 1 month (52%), 3 m(44%) or 6 m(3%). Single and dual chamber PM FU: every 3 m(1%), 6 m(36%) or 12 m(63%). For CRT - PM: every 3 m(9%), 6 m(75%) or 12 m(16%).
4 – Manual stimulation thresholds is systematic (84%) or if clinical problem (5%) while 11% trust in automatic function. Manual sensing test is systematic (77%) if clinical problem (9%) while 12% trust in automatic function.
5 – Memories is checked systematically (92%) or if clinical relevance (6%).
6 – Stimulo-dependance is systematically searched (76%) or if clinical relevance(24%), communicated to the patient(54%) and to the GP(75%).

Conclusion: If the multitrack ECG is common, physician without support use more often the programmer only, hence the interest in EGM collections and good quality prints. Assistance is common in public centers without any codified rules. Follow-ups are more frequent in CRT-PM. Physicians are interested in memories but they are not confident in the automatic functions.

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